

Changing Consumer Behavior: Do Incentives and Price Signals Work?

Colorado's New Energy Economy
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Better Questions:

- ❖ How do these proposals impact specific groups of consumers?
- ❖ What is the goal and how can it be achieved without adverse consequences for consumers?
- ❖ Do consumers change their behavior and put their health at risk?
- ❖ Mandatory v. voluntary? Is it necessary to target all programs to every customer?

We know a lot about how consumers react to “price signals”:

- > 2005 Rand Study: little price elasticity
- > “Heat or Eat”
- > July 07, estimated 1.2 million households disconnected
- > Weather related deaths and illness
- > RTP pilots—self selection and/or didn’t evaluate specific groups

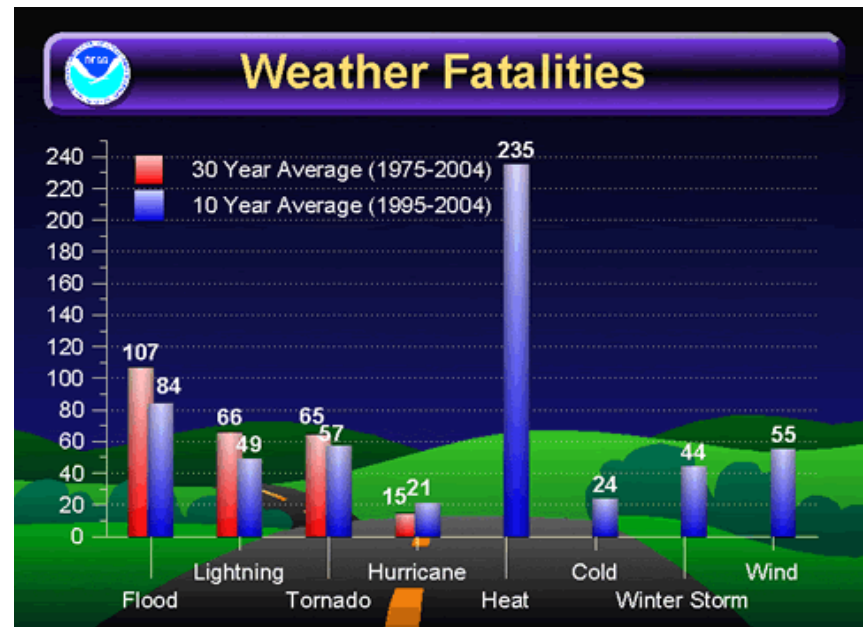
AARP 2005 survey of U.S. Adults

- To pay for higher energy bills consumers limit or do without:
- > Food—15%
 - > Medical services—11%
 - > Prescription drugs—11%

Heat/Cold Kills More than Other Natural Disasters

Risk Factors for weather related fatalities:

- > Age (especially 65+)
- > Income (lower income more at risk)
- > Social isolation/mobility restrictions
- > Medications
- > Drug and alcohol use
- > Underlying medical condition/mental illness
- > Disability
- > Homeless
- > Access to cooling
- > Urban “heat island”
- > Housing type



Risk or Reward for Consumers?

Decoupling
Advanced Meters
Incentive Based Demand
Response
Energy Efficiency
Inverted rates
Portfolio planning



“Save More, Pay More” Decoupling

- > Revenue guarantee for utility, without or without quid pro quo on EE
- > Counterproductive: little incentive to save
- > Sends mixed price signal message: “Save More, Pay More”
- > Accurate tracking is difficult
- > Exogenous factors influence usage—why should utility be rewarded?



Recently rejected:

- > New Mexico (PNM, Case No. 06-00210-UT, 6/29/07): “If implemented, it would, in effect, make PNM whole for past conservation efforts of consumers that have absolutely nothing to do with the enactment of the Efficient Use of Energy Act on which PNM relies for recovery for lost volumes. Moreover, PNM’s proposal fails to take any account of customer growth that has occurred during the time that consumption per customer may have declined. Therefore, the Commission finds that the decoupling proposal advanced by PNM in this case is **fatally flawed**, and that the Commission will not consider it again in any case.”
- > Nebraska (Aquila, NG-0041, 7/24/07): “such automatic mechanisms can lead to excessive rates, an inappropriate shifting of risks from stockholders to ratepayers, and decreased incentives to operate efficiently.”

Not a smart move: “Advanced” Meters



- > Increased infrastructure costs
- > “Price signals” meant to influence usage
- > Not all usage can be shifted off peak
- > Not all customers can shift usage off peak
- > Free riders v. homebound
- > Customer protections weakened
- > Pre-paid service

“Let’s cancel the cable and watch the electric meter instead.”



- > TOU, RTP, CPP
- > Assumes wholesale price signals are valid
- > Disregards consumer preference for stability
- > May not cut total usage
- > Assumes all consumers can take action in response to price
- > Informed and powerless

Energy Efficiency

- > Advanced meters, dynamic pricing and demand response are NOT energy efficiency.
- > EE is 24/7; no constant monitoring is needed
- > Permanent energy savings
- > Paying for EE investment is an issue—who pays? Who will benefit? Cost effectiveness and payback must be considered



Pay me to Save: Incentive Based Demand Response

- > Residential applications do not require advanced meters or big investment
- > Direct load control of appliances such as A/C, water heating cycling and smart thermostats
- > Pay consumers to participate
- > Target high use customers
- > DOE reports residential load control saved 0.4-1.5 kWh per customer per event





Other ways to save energy and influence usage

- > Low income weatherization
- > Customer education
- > Energy Audits
- > Programmable thermostats, energy star appliances, etc
- > Portfolio Planning
- > Inverted block rates with a sufficient first block

WRAP UP

- > Just because a tool exists doesn't mean you should use it— what is the goal and how is it best achieved?
- > Advanced meters increase infrastructure costs, assume consumers can respond to price signals, assume wholesale market prices are valid.
- > Decoupling results in a “save more, pay more” for consumers; there are other ways to promote utility energy efficiency.
- > Education, weatherization, portfolio planning, incentive based demand response are other options.
- > Proposals should be examined in contested proceedings with a full airing of the proposed costs and benefits of such programs, including impact on specific groups of customers such as low income, elderly, homebound.



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